

ALL CAMPUS ANIMAL CARE & USE COMMITTEE POLICY

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Title: Physical Restraint of Animals

Purpose: It is sometimes necessary to restrain animals for husbandry and research purposes, both to accomplish treatment or scientific objectives and to ensure the safety of the animal and human handler. However, because prolonged restraint can be stressful and has the potential to cause harm to the restrained animal under certain circumstances, it is critical that considerable care and training be employed. Sustained restraint should be utilized only when other means are not feasible and only following determination by the Institutional Animal Care and Use Committee (IACUC) that the objectives justify the procedures. Convenience alone is not normally deemed sufficient justification for prolonged restraint.

Definition: **The Guide for the Care and Use of Laboratory Animals (1996)** provides the following definition for physical restraint: "Physical restraint is the use of manual or mechanical means to limit some or all of an animal's normal movement for the purpose of examination, collection of samples, drug administration, therapy or experimental manipulations."

Restraint is assumed to involve immobilization and some limitation of normal postural adjustments. Although the criteria for prolonged restraint varies according to species and type of restraint, it is generally considered to involve periods longer than 10-15 minutes. This type of restraint entails a consideration of issues discussed in more detail below. Physical restraint for a duration longer than 12 hours should typically be avoided, especially in nonhuman primates, and requires special justification and additional accommodations that are described below.

Certain types of housing conditions for large agricultural animals require additional clarification because some may involve limits of free movement over long periods of time. The Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching (1999) addresses the use of confining devices, such as stanchions and squeeze chutes, but also emphasizes several important guidelines: 1) they should be approved by the IACUC when used for experimental purposes, 2) animals should be well-acclimated and monitored, and 3) continuous confinement should be limited if not needed and not considered to be normal housing.

Policy for Prolonged Restraint Used for Research Purposes (Criteria):

- **Approval** Prolonged restraint for research purposes must not be conducted without prior approval from the IACUC. The review and approval process should give special attention to the scientific rationale and justification, especially if it involves nonhuman primates and is for a duration longer than 1 hour. If required for routine animal husbandry or clinical treatment of large animal species, it should be employed only after consultation with the attending veterinarian, even if similar restraint or restrictions on movement have been traditionally utilized in agricultural settings.
- **Training** Any person using restraint procedures, even if for brief periods of time, must have received formal training and demonstrate proficiency (to someone who has already been trained) prior to carrying out these techniques unsupervised. Individual ACUCs may require documentation of training under certain circumstances. If mechanical restraint devices are employed, they must be appropriate for the species, employ designs of known safety, and be in good working order. The device should be appropriate for the stated objectives; e.g., to minimize self-inflicted harm if utilized to prevent grabbing of catheters or instrumentation. Training must include practice in putting an animal into the device, as well as removing it safely.
- **Selection and acclimation** While some types of restraint are employed routinely in animal husbandry and research, such as a squeeze cage for collecting specimens, and can be used with most animals, other restraint devices are more unique and require consideration of the appropriate selection of animals. These criteria, which must be included in a protocol approved by the ACUC, may include age, health status, temperament, and the animal's response to acclimation. Animals selected for prolonged restraint should be adapted gradually, with attention to greater care and monitoring needed during the initial training phase. During the period of acclimation, all animals must be monitored continuously, and records must be maintained on the adaptation procedures. A detailed description of the sequential steps should be kept and the records should be available for inspection upon request. If a particular restraint protocol will be employed on multiple animals, it is recommended that there be a written Standard Operating Procedure (SOP). It is assumed that the period of restraint will be limited initially, and gradually increased to the minimum point needed to meet research or treatment objectives.
- **Monitoring** If the restrained animal can potentially hurt itself while restrained, or if restraint is employed to prevent possible interference with potentially dangerous catheters or other instrumentation, then the monitoring must be continuous. Notations documenting this monitoring should be recorded each hour, as a minimum. In general, continuous monitoring may be advisable if the period of restraint exceeds 4 hours. Even for shorter periods between 1-4 hours, monitoring at periodic intervals may be required to ensure the wellbeing of the animal. Indirect monitoring by camera may be utilized if the observer can respond to an emergency in a timely manner.

A description of the monitoring procedures, including a statement about the frequency and duration of monitoring, must be included in a protocol approved by the IACUC.

- Sustained restraint > 12h. Restraint for periods longer than 12 hours, especially overnight, requires special justification and should be conducted only when the scientific goals or treatment exigencies do not allow for other options. In general, it is recommended that animals be released for at least 1 hour after every 12-hour restraint period, unless the IACUC and attending veterinarian concur that it would be ill-advised for safety reasons (e.g., in the case of animals where the catheter or instrumentation can not be easily removed and safely reinstalled). Continuous monitoring of the restrained animals would be required for this type of protocol, and close oversight of the project must be maintained by the IACUC or attending veterinarian. Despite these cautionary issues, there may be instances where sustained restraint is still the most appropriate and only option. Adequate acclimation, subject selection criteria, and the ancillary care of the restrained animal are critical issues. If sustained restraint must be utilized, the investigator should consider long intervals without restraint, as well as employing this type of procedure only infrequently for a given animal.

- Provision of Food, Water, Hygiene, and Enrichment For prolonged restraint, especially for periods >4 hours and certainly for an interval exceeding 12 hours, the human handlers must consider issues of hygiene, provisioning of food and water, as well as opportunities for environmental enrichment. For prolonged restraint, the ACUCs should be satisfied that intervals for providing food, water, and hygiene are appropriate. Environmental enrichment may include social stimulation from a human companion, behavioral activities associated with the research tasks or tests, as well as nonspecific stimulation, such as broadcasting music or television for nonhuman primates.

Special requirements and considerations may apply to certain species and situations. For gregarious species, such as dogs where a restraint sling may be employed, human companionship may be the most appropriate means to reduce stress. For social species, such as monkeys, the proximity of a familiar animal can be beneficial, even if it too is involved in restraint procedures.

- Complications Regardless of the length and frequency of restraint, close attention should always be given to the possibility of complications. These problems could initially seem relatively minor, such as small abrasions or edema, but care must be given to preclude the possibility of exacerbation or infection. Food and water intake between periods of prolonged restraint should be monitored, and body weight records should be maintained, especially in a young and growing animal. The attending veterinarian has the authority to terminate the restraint procedures at any point should there be signs of complications compromising the animal's wellbeing. Records of any complications must be maintained and be available to the IACUC upon request. The investigator must notify the attending veterinarian to evaluate any clinical concerns, and should treatment be deemed necessary, it would take precedence over experimental objectives.

Summary: Although this University of Wisconsin Policy sets limitations on how

restraint can and should be utilized, the guidelines are still intended to permit the use of restraint to accomplish the objectives of a research program, provide veterinary care, or to fulfill the need for safe husbandry practices, especially with large animal species where there are occupational safety issues for human handlers. In addition, it is also recognized that some housing conditions for large farm animals may limit free movement for sustained periods of time, and that this type of confinement can be approved by the IACUC.

Nevertheless, it is imperative that the use of physical immobilization or other significant restrictions of movement be maintained at the minimal level needed to meet the designated objectives of the research or breeding program. When employed appropriately, it is possible to incorporate restraint procedures into an animal care or research program in a humane manner, and to minimize the level of distress and risk. It is the intent of our institution to adhere to a compassionate policy that reduces unnecessary stress in the animals under our charge while still allowing our faculty, staff and students to meet important scientific and husbandry objectives in a safe and expeditious manner.

Prepared By: C. Coe Reference Minutes: 12/19/97, 06/04/04